

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 13.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-012172**Date Inspected:** 19-Feb-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** M. Gregson, J. Salazar**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Hinge K Pipe Beams**Summary of Items Observed:**

AG Machining (Boring, OR)

On this date, the QA Inspector arrived at AG Machine shop to observe OIW perform the final weld repair on the overlay and the surface finish testing, on the Fuse 120A-3. The QA Inspector arrived at approximately 0900 and met with OIW QC Inspector Jose Salazar, Mark Craig (OIW WID #C34) and an AG Machinist. QC Inspector Salazar explained that WID #C34 was setting up to perform the last remaining weld repair to the overlay, utilizing the Gas Tungsten Arc Welding (GTAW) process. QC Inspector Salazar explained that WID #C34, was currently qualified to perform this repair and will be performing the GTAW, per welding procedure specification (WPS 8022). The QA Inspector noted that the area had been previously marked by QC Inspector Salazar, during the Final Penetrant Testing and was previously excavated. QC Inspector Salazar explained that PT was previously performed after excavation and no rejectable indications were found. QC Inspector Salazar explained that the AG Machinist had previously rotated the Fuse, to access the weld repair areas in the flat position. The QA Inspector then witnessed WID #C34 applying pre-heat, utilizing a torch and then witnessed QC Inspector Salazar verifying a temperature of approximately 200 degrees Fahrenheit, with a digital thermometer. The QA Inspector noted that 125 degrees Fahrenheit minimum was required, per WPS 8022. The QA Inspector then witnessed QC Inspector Salazar verifying the in-process welding parameters. QC Inspector Salazar explained that parameters were recorded at 123 amps and 17 volts. The QA Inspector then witnessed, OIW welder #C34 perform the grinding with a buffer wheel on the completed weld repair to "flush" with the finished overlay surface.

The QA Inspector then witnessed QC Inspector Salazar setting up to perform the Final Penetrant Testing (PT), on the finished weld repair and surface profile checks with a profilometer, after cooling to ambient temperature. QC Inspector Salazar explained to the QA Inspector that the final PT testing on the repair will be performed, utilizing OIW's procedure QC-114, sect. 8.0, Water Washable Visible Die Penetrant. The QA Inspector then witnessed Mr.

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Salazar cleaning the repair area with acetone, to remove all surface irregularities, which would otherwise mask the indications of unacceptable indications. The QA Inspector witnessed Mr. Salazar perform a pre-heat check, utilizing a digital thermometer and noted that the surface temperature was approximately 74 degrees Fahrenheit (23 C). The QA Inspector witnessed Mr. Salazar then applying DP50 penetrant, utilizing a hand pump sprayer, to the repair area. The QA Inspector noted that the penetrant was applied evenly and Mr. Salazar explained that the DP 50 will sit for approximately 25-30 minutes (dwell time). The QA Inspector then verified the dwell time to be approximately 25 minutes and noted that Mr. Salazar had started to wipe the penetrant off with lint free rags. The QA Inspector then witnessed Mr. Salazar applying water, with a hand sprayer, to remove the excess DP50. The QA Inspector then witness Mr. Salazar applying D-100 spray can type developer, over the entire repair area, in a thin uniform coating. The QA Inspector noted that during the application of the D-100, that no relevant indications were present at the time. After approximately 20 minutes dwell time, the QA Inspector witnessed Mr. Salazar performing visual testing on the tested area. Mr. Salazar then explained that that no relevant indications were present and the PT was acceptable. The QA Inspector then witnessed QC Inspector Salazar cleaning off the applied developer with lint-free rags. The QA Inspector noted that the PT testing appeared to be in compliance with AWS D1.5 visual acceptance criteria and QC-114.

The QA Inspector then witnessed QC Inspector Salazar perform the final surface testing, utilizing a profilometer. The QA Inspector verified that the profilometer had a calibration sticker and had been calibrated by OIW on 12/10/09, with a next due date of 12/10/10. The QA Inspector then witnessed QC Inspector Salazar perform random testing on the surface finish. The QA Inspector witnessed QC Inspector Salazar perform surface finish testing on the previously repaired and smoothed surfaces on the overlay and noted the surface profile readings averaged .5um. QA Inspectors noted that the contract requires a surface finish of .8um. QA Inspectors noted that this surface finish appears to be in compliance with the contract requirements. See attached pictures below.

On this date, the QA Inspector was informed by AG Machine shop that OIW was arriving to perform the FARO Laser measurements, on this Fuse. The QA Inspector later arrived at approximately 1230 and met with the OIW Machinist, Matt Ackerson. Mr Ackerson explained to the QA Inspector that he was currently in process of performing the set up, on the FARO laser equipment. The OIW Machinist explained that the final outside diameter and Cylindrical Deviation, will be measured on this fuse assembly 120A-3, per the contract requirements. The QA Inspector witnessed the OIW Machinist performing these measurements and noted that at approximately 1400, the measurements were complete. The OIW Machinist explained to the QA Inspector that the finished outside diameter was measured at 1920.78 mm and the cylindrical deviation was measured at .18 mm. OIW Machinist Matt Ackerson explained to the QA Inspector that these measurements were calculated, based upon a theoretical surface temperature of 68 degrees Fahrenheit (20 C) and that the actual temperature of the fuse assembly was measured at approximately 50 degrees Fahrenheit (10 C). The QA Inspector noted that the contract requires a finished outside diameter of 1920mm (+/- 1mm) and cylindrical deviation within 1 mm. QA Inspector noted that the above mentioned FARO measurements, on this Fuse 120A-3, appeared to be in compliance with the specified tolerances, per the contract requirements. OIW explained to the QA Inspector that a final FARO test report will be completed and a copy will be provided to QA Inspector. See attached pictures below.

The QA Inspector then spoke with the AG Machinist and AG explained that the final facing and bevel prep will be performed on 2/22/10. AG explained that OIW wants to pick up the Fuse on 2/23/10 and switch out, but this depends on METRO's schedule.

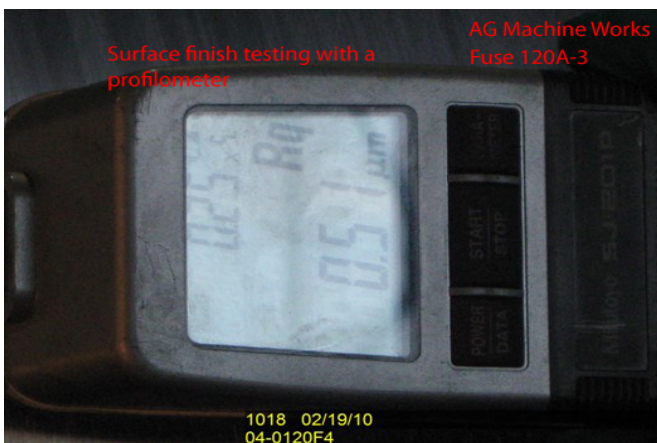
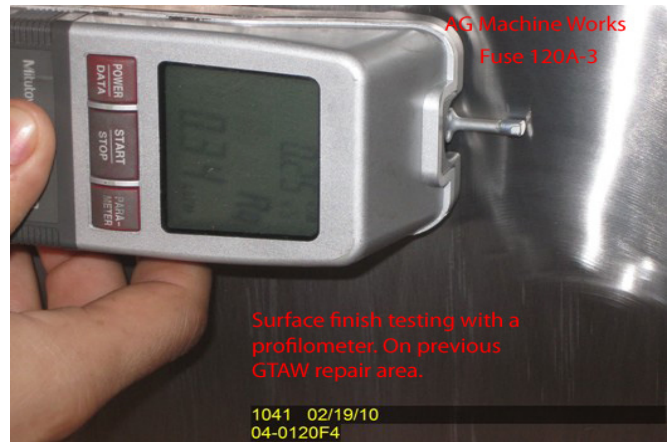
Material, Equipment, and Labor Tracking (MELT)

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 2 OIW production personnel and 2 QC Inspectors.

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The QA Inspector observed at AG Machine Works: 1 AG Machinist, 1 OIW Welder and 1 OIW QC.



Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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Inspected By:	Vance,Sean	Quality Assurance Inspector
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Reviewed By:	Adame,Joe	QA Reviewer
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